

What we claim is:

1. A multilayered article comprising:
a first layer of soft aliphatic polyurethane having an inner and outer surface, wherein said soft aliphatic polyurethane has a Shore hardness from about 40A to about 95A as measured according to ASTM D2240; and
at least one second layer of hard aliphatic polyurethane on at least one of said inner and outer surface of said first layer, wherein said hard aliphatic polyurethane has a Shore hardness from about 95A to about 85D as measured according to ASTM D2240, with the proviso that if said hard aliphatic polyurethane is a polycarbonate polyurethane, said Shore hardness of said hard aliphatic polyurethane is from about 70A to about 80D.
2. The multilayered article of claim 1, wherein said soft aliphatic polyurethane has a Shore hardness of from about 65A to about 85A.
3. The multilayered article of claim 1, wherein said hard aliphatic polyurethane has a Shore hardness of from about 40D to about 75D.
4. The multilayered article of claim 1, wherein said article is a tube.
5. The multilayered article of claim 1, wherein said article is a film.
6. The multilayered article of claim 4, wherein said tube has said second layer of hard aliphatic polyurethane on said outer surface of said first layer of soft aliphatic polyurethane.
7. The multilayer article of claim 4, wherein said tube has said second layer of hard aliphatic polyurethane on said inner surface of said first layer of soft aliphatic polyurethane.

8. The multilayer article of claim 4, wherein said tube has said second layer of hard aliphatic polyurethane on both said inner and outer surface of said first layer of soft aliphatic polyurethane.

9. The multilayer article of claim 6, wherein said tube is a profile tube.

10. The multilayer article of claim 1, wherein both of said soft and said hard aliphatic polyurethane is a polyether polyurethane.

11. The multilayer article of claim 10, wherein said polyether polyurethane is the reaction product of at least one polyether polyol with at least one aliphatic diisocyanate and at least one glycol chain extender.

12. The multilayer article of claim 11, wherein said polyether polyol is polytetramethylene ether glycol.

13. The multilayer article of claim 12, wherein said polytetramethylene ether glycol has a number average molecular weight of from about 500 to about 10,000.

14. The multilayer article of claim 13, wherein said polytetramethylene ether glycol has a number average molecular weight of from about 700 to about 3,000.

15. The multilayer article of claim 11, wherein said aliphatic diisocyanate is selected from the group consisting of hexamethylene diisocyanate, isophorone diisocyanate, trimethyl hexamethylene diisocyanate, dicyclohexyl methane diisocyanate, and dimmer acid diisocyanate.

16. The multilayer article of claim 15, wherein said aliphatic diisocyanate is dicyclohexyl methane diisocyanate.

17. The multilayer article of claim 11, wherein said glycol chain extender has from about 2 to about 10 carbon atoms.

18. The multilayer article of claim 17, wherein said glycol chain extender is 1,4-butanediol.

19. The multilayer article of claim 1, wherein said hard aliphatic polyurethane is a polycarbonate polyurethane.

20. The multilayer article of claim 19, wherein said polycarbonate polyurethane is the reaction product of at least one polycarbonate polyol with at least one aliphatic diisocyanate and at least one glycol chain extender.

21. The multilayer article of claim 20, wherein said polycarbonate polyol has a number average molecular weight of from about 500 to about 10,000.

22. The multilayer article of claim 21, wherein said polycarbonate polyol has a number average molecular weight of from about 500 to about 2,500.

23. The multilayer article of claim 1, wherein said article is a film.

24. The multilayer article of claim 1, wherein the thickness of said at least one second layer of hard aliphatic polyurethane is from about 0.0001 to about 0.010 inch.

25. The multilayer article of claim 24, wherein the thickness of said at least one second layer of hard aliphatic polyurethane is from about 0.0005 to about 0.001 inch.

26. The multilayer article of claim 1, wherein both of said soft aliphatic polyurethane and said hard aliphatic polyurethane are biocompatible and biostable.

27. A process for making a multilayer article comprising:
providing a hard aliphatic polyurethane having a Shore hardness from about 95A to about 85D as measured according to ASTM D2240, with the proviso that if said aliphatic polyurethane is a polycarbonate polyurethane, said Shore hardness of said hard aliphatic polyurethane is from about 70A to about 80D, and a soft aliphatic polyurethane having a Shore hardness from about 40A to about 95A as measured according to ASTM D2240;
coextruding said soft aliphatic polyurethane and said hard aliphatic polyurethane to form a multilayer article.

28. The process of claim 27, wherein said hard aliphatic polyurethane has a Shore hardness of from about 40D to about 75D, and wherein said soft aliphatic polyurethane has a Shore hardness of from about 65A to about 85A.

29. The process of claim 28, wherein said multilayer article is a tube.

30. The process of claim 29, wherein said tube has a thickness of said hard aliphatic polyurethane of from about 0.0005 to about 0.001 inch.

31. The process of claim 28, wherein said hard aliphatic polyurethane is selected from the group consisting of polyether polyurethane and polycarbonate polyurethane.

32. The process of claim 31, wherein both of said soft aliphatic polyurethane and said hard aliphatic polyurethane are biocompatible and biostable.

33. A process for making a multilayer article comprising:

(a) providing a soft aliphatic polyurethane having a Shore hardness of from about 40A to about 95A, as measured according to ASTM D2240, in the form of an extruded tube or extruded or blown film;

(b) forming a solvent solution by dissolving a hard aliphatic polyurethane having a Shore hardness of from about 95A to about 85D as measured according to ASTM D2240 in a solvent;

(c) contacting said solvent solution with said extruded tube or extruded or blown film to coat at least one surface of said extruded tube or extruded or blown film with said solvent solution;

(d) evaporating said solvent from said solvent solution to form a multilayer article.

34. The process of claim 33, wherein said solvent is selected from the group consisting of tetrahydrofuran, dimethyl acetamide, cyclohexanone, cyclopentanone, dimethyl formamide, methylene chloride, and dioxane.

35. The multilayered article of claim 4, wherein said tube has an inner diameter (ID) of from about 0.003 to about 0.500 inch and an outer diameter (OD) of from about 0.011 to about 0.550 inch.

36. The multilayered article of claim 35, wherein said tube has an outer diameter (OD) of from about 0.06 to about 0.2 inch.